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HYDROIDS OF THE VEMA SEAMOUNT

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HYDROIDS OF THE VEMA SEAMOUNT

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(With 1 figure in the text)

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Introduction

The material recorded in this paper is part of a collection of benthic fauna made by the Department of Oceanography of the University of Cape Town and the Division of Sea Fisheries, Cape Town, in November, 1964. The Vema Seamount is situated in 31° 38′ South Latitude and 08° 20′ East Longitude, approximately 550 miles off the west coast of South Africa, and is surmounted by a plateau of about five square miles with a mean depth of 73 m. The hydroid material was obtained from a rocky bottom in depths varying from 42 to 61 m. and was part of a mixed community containing also sea-weeds, sponges, ascidians and holothurians. Further details of the expedition are reported by Simpson and Heydorn (1965). It is of interest that from a cursory examination of the fauna these authors remark on an apparent affinity with Tristan da Cunha. This was particularly evident in the fish, and the common rock-lobster (*Jasus tristani*), which is now being exploited commercially, is similar to that occurring in the Tristan area.

The hydroid collection is the property of the South African Museum and will be lodged there.

Family Haleciidae

Halecium beanii (Johnston, 1838)

Three infertile samples, two from 54 m. and one from 61 m. Stems reaching a maximum height of 8·6 cm.

Ann. S. Afr. Mus. **48** (19), 1966: 489–496, 1 fig.

Hydrodendron caciniformis (Ritchie, 1907)
Fig. 1

Ophiodes caciniformis Ritchie, 1907: 500, pl. 23 (fig. 11, 12), pl. 24 (fig. 1).
Hydrodendron caciniformis: Millard, 1957: 186, fig. 3. Ralph, 1958: 342, fig. 13b, c, 14a.
Phylactotheca caciniformis: Pennycuik, 1959: 174.
Ophiodissa caciniformis: Vervoort, 1959: 218, fig. 1, 2.

One sample from 54 m. Stems reaching a maximum height of 0·9 cm., most of them unfascicled, though a few weakly fascicled at base. Structure of stem and hydrophore similar to the South African material, though dimensions on the whole slightly smaller.

Gonophores borne in numbers on hydrorhiza. Elongated barrel-shaped, with short pedicel and truncated distal end, lightly annulated. Reaching 1·35 mm. in length and 0·58 mm. in maximum diameter. Male and female similar in appearance and distinguishable only under the microscope. Male

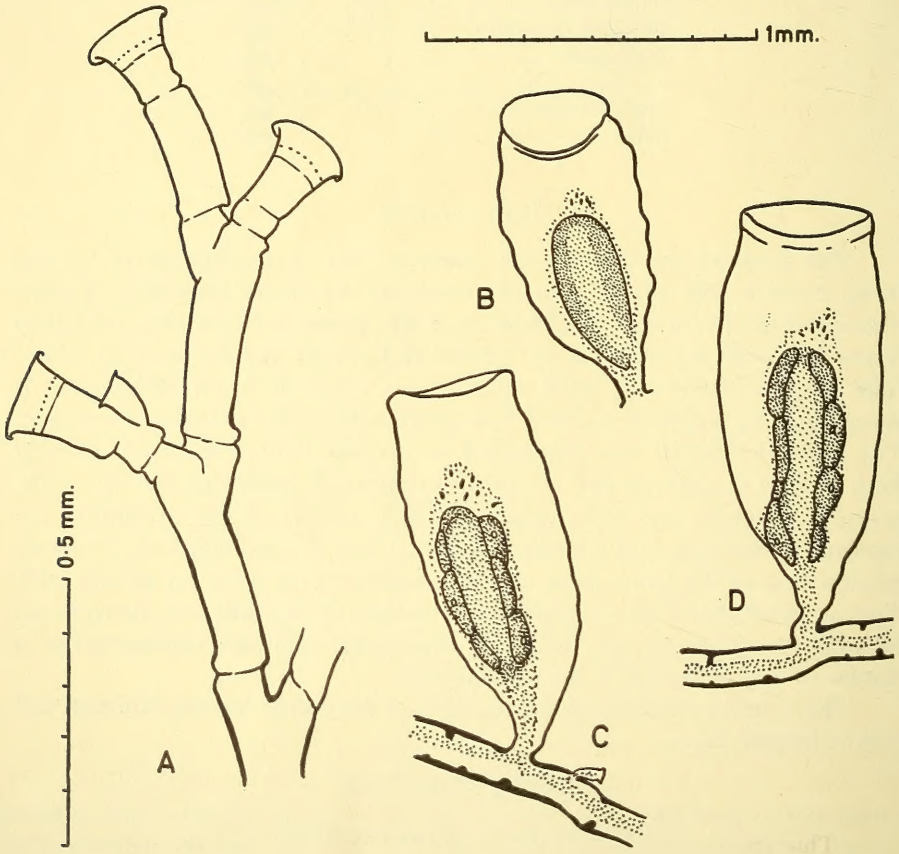

Fig. 1. *Hydrodendron caciniformis*
A. Portion of stem. B. Male gonophore. C and D. Female gonophores.

generally slightly smaller than female. Blastostyle consisting of an elongated spadix bearing a single layer of rather flattened eggs in the female and a mass of spermatogenic cells in the male, the whole enveloped by a diffuse layer of tissue rich in large stenotele nematocysts. No hydranths present.

Although gonothecae were described by Bale (1919), for *Ophiodes australis*, which Ralph suspects to be a synonym, they were not illustrated, and this is the first certain record of gonophores for *H. caciniformis*.

I cannot agree with Pennycuik that *Ophiodissa expansa* Fraser, 1948, from the Pacific coast of North America is a synonym. Not only does Fraser illustrate the nematotheca of this species without the everted rim which is so typical of *H. caciniformis*, but the gonophore is different. In *O. expansa* it is borne on the stem, is much more strongly annulated ('very strongly crested rugosities': Fraser, 1948: 227) and has a narrower aperture.

Family Campanulariidae

Obelia geniculata (Linnaeus, 1758)

One young infertile colony growing on weed from 54 m. Maximum height of stem 0·5 cm.

Family Lafoeidae

Lafoea fruticosa M. Sars, 1851

One small infertile colony from 54 m. Maximum height of stem 1·0 cm.

Family Sertulariidae

Amphisbetia bidens (Bale, 1884)

One infertile colony from 54 m. Maximum height of stem 3·4 cm.

Amphisbetia minima (d'Arcy Thompson, 1879)

One colony, with gonophores, from 54 m. Maximum height of stem 0·6 cm.

Dynamena quadridentata nodosa Hargitt, 1908

Two infertile samples growing on weed, both from 61 m. Maximum height of stem 0·6 cm.

Parascyphus simplex (Lamouroux, 1816)

Thyroscyphus tridentatus: Ritchie, 1909: 74, fig. 1.
Parascyphus simplex: Splettstösser, 1929: 126. Totton, 1930: 179, fig. 29. Ralph, 1961: 755, fig. 1b.

Two small infertile colonies from 42–50 and 54 m. Stems reaching a maximum height of 1·0 and 0·8 cm. respectively. Stem usually unbranched, but in some cases giving off one, or even two, lateral branches. Structure of stem and hydrothecae as in previous descriptions.

This species has not been recorded from South Africa, but has been reported from Gough Island by Ritchie. Apart from this there are several records from Australasia and one from Great Britain.

Salacia articulata (Pallas, 1766)

One colony, with gonophores, from 54 m. Maximum height of stem 2·3 cm.

Sertularella arbuscula (Lamouroux, 1816)

Two very typical, though infertile, colonies from 54 and 61 m. Maximum height of stem 6·8 cm.

Sertularella flabellum (Allman, 1886)

Two infertile colonies from 61 and 54 m. Maximum height of stem 2·0 cm.

Sertularella mediterranea Hartlaub, 1901

One infertile colony from 42–50 m., consisting of stems reaching a maximum height of 2·3 cm., most of them with one lateral branch. Also a fragment from 54 m.

Sertularella megista Stechow, 1923

One infertile colony from 54 m. Maximum height of stem 3·9 cm.

Sertularia distans gracilis Hassall, 1848

Four infertile colonies growing on weed, two from 54 m. and two from 61 m. Maximum height of stem 0·4 cm.

Also a colony with rather larger dimensions and of more doubtful identification from 61 m. The stems in this sample reach a maximum height of 1·0 cm. The hydrothecae are larger than the normal material found on the South African coast (Millard, 1957, 1958, 1964), the internodes longer, and the typical basal hinge-joints are absent. One of the stems has a branch arising from the posterior surface.

Sertularia marginata (Kirchenpauer, 1864)

One infertile colony growing on weed from 54 m. Both simple and branched forms present. Maximum height of branching stem 1·7 cm.

Family Plumulariidae (subfamily Halopterinae)

Antennella quadriaurita Ritchie, 1909

Antenella quadriaurita Ritchie, 1909: 92, fig. 9.
Antennella quadriaurita: Stechow, 1919: 113.

Three infertile samples from 42–50, 54 and 61 m. and one fertile sample from 42–50 m.

Stems reaching a maximum height of 2·2 cm., normally solitary, but sometimes clustered together at base, and sometimes giving off up to four subsidiary branches. These branches arise quite irregularly, usually from the posterior surface of the basal athecate region, and successive branches never form the main axis of the stem as in *Monostaechas faurei* Millard, 1958. Stem with alternate

thecate and athecate internodes, of which the athecate ones are longer in the basal region and the thecate in the distal region. Athecate internodes generally bearing two nematothecae each, but sometimes one, and only rarely three. Hydrotheca with depth and marginal diameter approximately equal. Other details as described by Ritchie.

Gonothecae (not previously described) borne on thecate internodes just below hydrothecae, pear-shaped, with truncated distal end and wide spherical aperture, with two nematothecae on basal region (probably female). Pedicel of two segments.

A. quadriaurita is known only from Gough Island and Havana. There is little to distinguish this species from *A. africana* Broch, 1914, other than the number of nematothecae borne on the athecate internodes. For the type material of *A. quadriaurita* from Gough Island Ritchie gives two to four, but generally three, and for the Havana material Stechow gives two. In *A. africana* there is normally only one, but occasionally two, and very rarely three. As shown in the following table, material from the Vema Seamount is intermediate between that from Gough Island and *A. africana* from South Africa. *A. quadriaurita* is retained as a separate species solely on the fact that *most* of the athecate internodes have more than one nematotheca, though it is likely that more material from the Atlantic will show a completely intergrading series, in which case it will be necessary to sink *A. africana* in the synonymy of *A. quadriaurita*. The gonophores of the two species are identical.

Number of nematothecae per athecate internode	1	2	3	4	*Number of internodes examined*
Gough Island (from Ritchie) ..	—	40%	55%	5%	20
Vema Seamount ..	23%	74%	2%	—	90
South Africa	94·3%	5·5%	0·2%	—	506

Halopteris constricta Totton, 1930

Two samples, both from 54 m., one bearing gonophores. Maximum height of stem 0·8 cm.

Family Plumulariidae (subfamily Plumulariinae)

Plumularia pulchella Bale, 1882

Three samples, all from 54 m. The most luxurious colony has stems reaching a maximum height of 1·0 cm. and bears gonophores. Some of its stems bear one to three irregular lateral branches.

Plumularia setacea (Linnaeus, 1758)

Six samples, none of them luxurious, two from 42–50 m., three from 54 m.

and one from 61 m. Two samples bear gonophores, and the maximum height of the stem is 1·7 cm.

Plumularia spinulosa Bale, 1882

Three samples, one from 42–50 m. and two from 54 m. Maximum height of stem 0·5 cm. Young gonophores present in one sample.

Family Plumulariidae (subfamily Kirchenpauerinae)

Pycnotheca mirabilis (Allman, 1883)

One infertile sample from 42–50 m. Maximum height of stem 3·1 cm.

Family Plumulariidae (subfamily Aglaopheniinae)

Aglaophenia pluma pluma (Linnaeus, 1758)

Six samples, one from 42–50 m., three from 54 m. and two from 61 m. Four of these colonies fertile and both male and female corbulae present. Stems reaching a maximum height of 2·4 cm. This material is of more delicate build than that found in South Africa, and in many cases the internodal septa and intrathecal septum are poorly developed or absent. The median nematotheca is always short as shown by Broch (1933, fig. 18a).

Lytocarpus filamentosus (Lamarck, 1816)

Five samples, all infertile, one from 42–50 m., three from 54 m. and one from 61 m. Maximum height of stem 9·0 cm.

Discussion

Of the 23 hydroid species here recorded, 21 also occur in South Africa and it appears that in the case of the hydroid fauna at any rate the two areas have close affinities with one another. Of the remaining two (*Parascyphus simplex* and *Antennella quadriaurita*) both have been reported from Gough Island in the South Atlantic by Ritchie, 1909. The hydroid fauna of the Tristan group of islands is, however, very poorly known, and it is probable that further investigation would show more species in common with the Vema Seamount.

Further analysis shows that of the total 23 species 10 are cosmopolitan, namely:

Halecium beanii
Obelia geniculata
Lafoea fruticosa
Amphisbetia minima (south of the Mediterranean)
Dynamena quadridentata
Sertularella mediterranea
Sertularia distans gracilis
Sertularia marginata

Plumularia setacea
Aglaophenia pluma pluma

With these should probably be included *Parascyphus simplex* and *Hydrodendron caciniformis*, which have a peculiar scattered distribution, the former being known from Australasia, Gough Island and the west coast of Scotland, and the latter from the Cape Verde Islands, Mediterranean, West Indies, tropical West Africa, Australasia and South Africa.

Seven species have an Indo-Pacific distribution, namely:

Amphisbetia bidens: Australia, Madagascar, South Africa.
Sertularella arbuscula: Indian Ocean, Australia, South Africa.
Halopteris constricta: New Zealand, South Africa.
Plumularia pulchella: Australasia, South Africa.
Plumularia spinulosa: Australasia, Japan, South Africa.
Pycnotheca mirabilis: Australasia, Japan, west coast of North America, South Africa.
Lytocarpus filamentosus: Australia, Madagascar, South Africa.

Three species are so far known only from South Africa, namely:

Salacia articulata
Sertularella flabellum
Sertularella megista

One species has an Atlantic distribution, namely:

Antennella quadriaurita: Gough Island, Havana.

Summary

A total of 23 species of hydroids is recorded from the Vema Seamount. Of these the gonophores of *Hydrodendron caciniformis* and *Antennella quadriaurita* are described for the first time.

The distribution of the species in the rest of the world is discussed. It is concluded that the affinities of the hydroid fauna are mainly with South Africa.

Acknowledgements

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SMITH, C. D. 1954. South African Plonias. *In* Brown, X. Y. *Marine faunas.* 2nd ed. **3**: 63–95. London: Green.

SYNONYMY

Arranged according to chronology of names. Published scientific names by which a species has been previously designated (subsequent to 1758) are listed in chronological order, with abbreviated bibliographic references to descriptions or citations following in chronological order after each name. Full references must be given at the end of the paper. Articles and recommendations of the *International code of zoological nomenclature adopted by the XV International congress of zoology, London, July* 1958, are to be observed (particularly articles 22 and 51).

Examples: *Plonia capensis* Smith, 1954: 86, pl. 27, fig. 3. Green, 1955: 23, fig. 2.

When transferred to another genus:

Euplonia capensis (Smith) Brown, 1955: 259.

When misidentified as another species:

Plonia natalensis (*non* West), Jones, 1956: 18.

When another species has been called by the same name:

[*non*] *Plonia capensis*: Jones, 1957: 27 (= *natalensis* West).